the astrogram

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National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

Apollo 16 Crew Visits Ames

The Apollo 16 crew, Thomas K. Mattingly, II, John W. Young, and Charles M. Duke, Jr. paid a visit to Ames last week. Mrs. Dottie Duke and Mrs. Susy Young were with their astronaut husbands.

The group began their visit by greeting 300 Ames employees and members of their families at an ARA-sponsored cocktail party on the Cafeteria patio Tuesday evening. Each astronaut thanked the Center for its support of the Apollo mission.

Mattingly, speaking in a friendly southern drawl, said "If it hadn't been for the work done quite awhile ago here at Ames, on how to re-enter the atmosphere, our mission wouldn't have been possible. It was good work, and we're glad you did it."

Duke praised the Center for its work on the Saturn Booster, saying, "That concept was proven feasible here."

Commenting on his Moon walk with Young, he said, "We agreed before the mission not to use "Astronautese.' That is, words like 'neat,' 'really super,' 'gee whiz,' and 'fantastic.' We were going to stick to scientific language.

"I think within the first ten minutes of our walk I had used 'fantastic' ten times. But, that's really the only way to describe that experience. You get a completely different perspective of Earth, even after you're home again . . .

"It kind of makes you realize that each of us has a responsibility to everybody else. People have just got to start communicating."

Before leaving the party the astronauts presented the Center with a small American flag that had traveled with them to the Moon. The flag is mounted on a plaque with the Apollo 16 emblem and this quote;

"There is nothing so far removed from us so as to be beyond our reach, or so hidden that we cannot discover it. Rene Descartes - 1637."

The plaque is inscribed, "To Ames Research Center with thanks for your help in making this possible and sincere best wishes from Apollo 16." It is signed by the crew.

The astronauts were welcomed to the Center on Wednesday by Dr. Hans Mark, Director, then given a tour which began in the Airplane Hangar.

Martin A. Knutson, Airborne Science Office, explained to the crew the work of Ames' U-2 aircraft and the applications of the Earth Resources Program. The trio viewed the C-141 and the 990 aircraft and

APOLLO 16 CREW . . . (l to r) John W. Young, Charles M. Duke, Jr., and Thomas K. Mattingly, while visiting Ames last week gave the Center a flag that had traveled with them to the Moon. Accepting the flag is Dr. Hans Mark, Ames Director (right).

(U.S. Army Corps of Engineers photograph from NASA)

This photograph, released June 30 by the U.S. Corps of Engineers, shows the recently flooded Northern California Delta Region. It was taken from Ames' U-2 aircraft on June 21, one day after the levee broke. Isleton may be seen at the top of the photograph before it was completely submerged; Andrus Island is underwater.

Through the National Oceanographic and Atmospheric Administration, the U.S. Army Corps of Engineers and the State of California Governor's Office requested that Ames' U-2 aircraft aid in flood control efforts. Although disaster control is only a small part of Ames' Earth Resources Program, the U-2's unique capabilities as high altitude camera platforms make them excellent for this type of work.

Urban Technology Conference

The Second Urban Technology Conference, sponsored by the American Institute of Aeronautics and Astronautics (AIAA) and Public Technology, Inc., will be held at the San Francisco Civic Center, July 24-26.

The objective of the meeting is to bring together government officials of all levels who are concerned with the problems of cities and the producers of technology in government and industry who have the interest and capability to solve some of the problems in urban environments, transportation systems, and the general quality of life.

Conference sessions during the three days will include discussions of ongoing or completed programs in the transportation and environment areas; analysis and synthesis through panel discussion of the underlying causes for success or failure of such programs; and a full session on the mechanisms of technology transfer.

As a Bay Area event, this national forum on urban problems is being supported by the City and County of San Francisco, the League of California Cities, and the Association of Bay Area Governments (ABAG). The meeting is of great public interest and of special interest to members of the Ames staff who are conducting research in ecological and environmental projects.

Chairman of the Conference program is Charles W. Harper, Special Assistant for Interagency Af-

ASSIST ARIZONA LAND USE EXPERIMENT

U-2's Gather Secrets of Nature

It looks like Superman. It takes one short hop down the runway, then climbs 23,000 feet in one and one-half minutes. By the time the ground crew has picked up the pogos (poles on wheels that support the aircraft's long wings) Ames' U-2 has shrunk to a barely visible speck.

It is off to gather the well guarded secrets of nature. Able to sustain flight at very high altitudes, it is ideal for remote sensing of large areas.

Both of Ames' U-2's (NASA #4 and 5) are now photographing the state of Arizona; an area of over 114,000 square miles, from an altitude of 65,000 feet. The film products acquired by the U-2's will be used for a comprehensive land use analysis experiment.

With the help of NASA and the U.S. Department of the Interior, Arizona is experimenting with a new way of developing a land use inventory system which will facilitate the orderly management of the state's natural resources as the population continues to grow at a rapid rate.

This experiment will include developing a large number of photographic maps which will cover the entire State. These maps, called orthophotoquads, will be used subsequently in various ways by several Arizona State agencies. In addition, the School of Forestry and Northern Arizona University, plan to use the data to conduct research in watershed management, forestry and insect infestation.

SATELLITE

After the Earth Resources Technology Satellite-A (ERTS-A) is launched this month the aircraft will fly in direct support of the spacecraft. The ERTS flight will be the nations' first attempt to monitor Earth resources from space.

The U-2's will complement the ERTS photos by providing sample data at higher resolution because of the lower altitude using similar instrumentation and equivalent spectral band widths. In addition, where necessary they will cover the same areas more often than the ERTS.

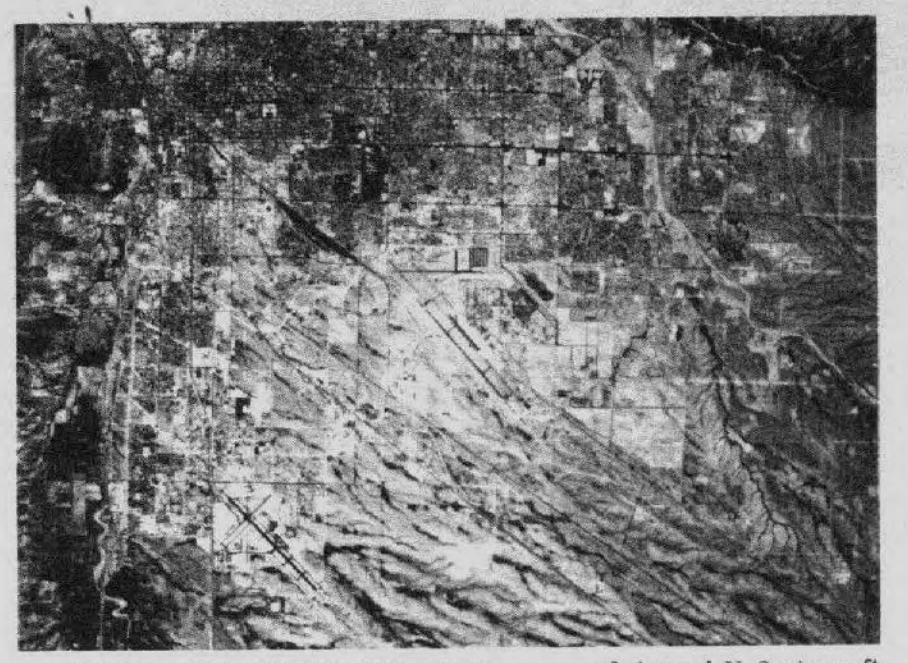
The aircraft will acquire photographic data in color, infrared and other spectral bands at 50 test sites in the continental United States. The test site data will be processed and distributed by Ames to 47 ERTS investigators who need seasonal terrain change data in such areas as agriculture, hydrology and forestry for analysis of the early growing season in lieu of ERTS photography.

The two aircraft will take photos at the same time of day as the satellite takes similar pictures from about a 550-mile altitude.

Seasonal and other changes from the aircraft will be correlated with ERTS-A photos to monitor such things as healthy crops and forests and disease infestations changes. Changes may be further checked for accuracy by personal visits to the areas by investigators or cooperating organizations.

Five cameras are installed in each of the two aircraft including a mapping camera with a 152-millimeter (six-inch) focal length lens which will be used to provide the basic cartographic photography.

A set of four short focal length cameras provides coverage of approximately the same ground area. These short focal length cameras will obtain lower resolution multispectral data to be plotted on the cartographic base obtained from the mapping camera.



UNDER THE WATCHFUL EYE . . . of Ames' U-2 aircraft cameras the secrets of Mother Nature are opened. This photo shows a 262 square mile area of Arizona with Davis-Monthan Air Force Base (center), Tucson (north of the Base) and the Tucson International Airport (lower left). Orthophotoquads, as these aerial maps are called, are being made from Ames' U-2 aircraft of the entire state of Arizona to facilitate the management of the state's natural resources. The high altitude mapping is a cooperative effort by the State of Arizona, the U.S. Department of Interior Geological Survey and NASA.

PERFORMANCE AWARDS . . . continue to be very much in the news as Ames employees receive recognition for special achievements. The most recent recipient was Paul E. Schillerstrom (left), Industrial Engineering Technician in the Planning Office of the Technical Services Division. Mr. Schillerstrom is a specialist in machine shop estimating and manufacturing and works closely with outside contractors. The NASA Special Achievement Award which he is shown receiving, cited him for his work in procuring components for the production of the SPARCS (Solar Pointing Aerobee Rocket Control System) and separation devices necessary for the SPARCS/Aerobee launches. The award was presented by Robert E. Eddy (center), Deputy Director of Research Support, at a ceremony attended by Creighton A. Sencenbaugh (right), Chief of the Planning Office.

ASTRONAUTS

(Continued from Page 1)

discussed the simulation of Shuttle experiments and flights with Dr. Michel Bader.

The group moved to the Simulation Equipment Building where George A. Rathert, Jr., Simulation Sciences and Joseph J. Zuccaro, Simulation Experiments, explained the functions of the Flight Simulator for Advanced Aircraft.

The Earth Resources Program was further described in the Structural Dynamics Laboratory where they saw the 36 foot Infrared Telescope Assembly area. The telescope, when installed in the C-141 aircraft, will be part of the largest airborne observatory in the world.

The tour was completed with explanations of the QUESTOL and Pioneer Projects by the respective Project Managers; David E. Reese, Jr. and Charles F. Hall.

After leaving Ames the astronauts visited San Francisco where they were given a key to the city by Mayor Joseph Alioto. They also taped a television interview at KGO, Channel 7, which will be aired July 9 at 7:30 p.m.

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Thursday between publication dates

Technology Conference

(Continued from Page 1)

fairs to the Ames Director. Ilia G. Poppoff, Assistant Chief of the Space Science Division, will chair the session on "The Urban Environment," and serving as a member of the UTC Steering Committee is Stanley A. Miller, Ames Public Affairs Officer.

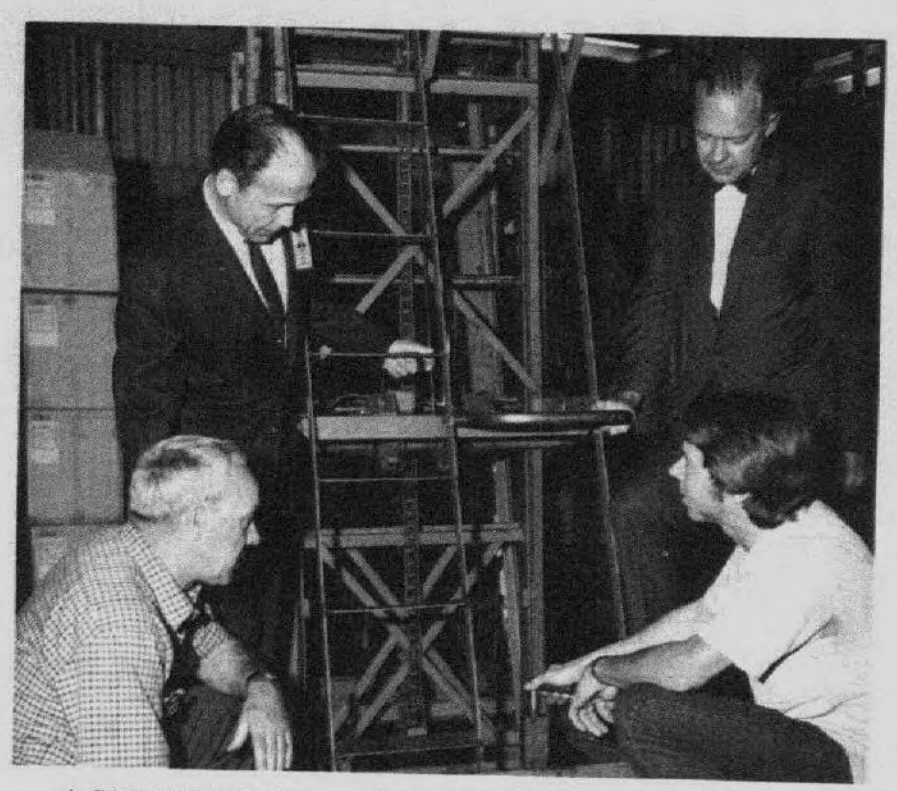
A long list of distinguished participants will be featured. These include James Beggs, Under Secretary, Department of Transportation; H. Guyford Stever, Director, National Science Foundation; William Magruder, Special Counsel to the President; Donald H. Elliott, New York Planning Commissioner; Wally Schirra, former astronaut and now Chairman, Environmental Control Company; and Thomas O. Mellon, Chief, Administrator, City of San Francisco.

NASA will have a large Technology Applications Exhibit which Ames has been designated to coordinate. Harry J. DeVoto and Joseph C. Chizanskos of the Graphics and Exhibits Branch are designing and producing the exhibits and Richard Orrick of NASA Headquarters is responsible for the workshop area. The Center also will have several exhibits on such subjects as earth resources observation research, biomedical applications, environmental protection and fire protection systems.

Salvador A. Rositano, Ames Electro - Systems Engineering Branch, heads a team which will demonstrate medical applications. A 35-foot-diameter exhibit on Earth Resources Observation Research will depict the work of Ronald F. Reinisch, Hermilo R. Gloria, John C. Arveson, and John P. Millard. This display will include the research of Dr. William L. Quaide, Planetology Branch, and that of Martin A. Knutson in the Earth Resources Aircraft Project. Salvatore R. Riccitiello, Chemical Research Projects Office, will be a workshop and exhibit participant.

An Encounter Area will afford scientists and technology specialists an opportunity to effect a dialogue with urban officials with respect ot problems and their solutions. Bradford A. Evans, Ames Technology Utilization Officer, is responsible for presenting the NASA TU Program in this area.

The Ames PAO is making arrangements for participation in the Conference of nearly 150 members of the Ames technical staff. Charter buses will leave the Center at 7:30 a.m. each day and will return the passengers each day.



A SAFETY BRAKE . . . for a portable aircraft stand used in the 40- by 80-Foot Wind Tunnel is demonstrated for this interested group by the designer, Arthur L. Morris (right, foreground), Large-Scale Aerodynamics Branch. The twist lock brake is not only a highly efficient tool, but has eliminated a potential safety hazard. Mr. Morris was presented with a $350 suggestion award for the intangible and tangible benefits of his idea by his branch chief, Mark W. Kelly (standing, right), during a recent ceremony. In addition, he received an invention award for the tool from the NASA Inventions and Contributions Board earlier this month. Shown examining the safety brake are Norman S. Johnson (standing left), Assistant Chief of the Flight Systems Research Division, and Edwin J. Verrette (left, foreground), Large-Scale Aerodynamics Branch.

Alan Faye Returns from Sloan Program

Alan E. Faye, Jr., the sixth member of the Ames staff to attend the Stanford-Sloan Program, has returned to the Center after completing the nine-month course of study in advanced management techniques and humanities.

Mr. Faye has termed the Program a "stimulating experience". He said, "It gave me an insight into private business operations and an opportunity to exchange ideas with top managers from industry throughout this country, Europe, and Japan who were participating in the Program." He stressed the importance of the interaction between the Sloan Fellows and "brain picking" sessions which he considered to be one of the most valuable aspects of his associations.

On his return to Ames Mr. Faye was appointed to the position of Flight Experiments Program Manager for the Quiet Experimental STOL (QUESTOL) Project Office. In his new assignment Mr. Faye is coordinating a flight program whose objective is to generate enough information for aircraft designers and users to proceed with a powered-lift jet-STOL air transportation system. This is a joint interagency program which includes NASA, Department of Transportation, Department of Defense, airlines and the aircraft industry.

New Courses for the Computer User

A new series of tutorials, seminars, and short classes on various advanced topics of current interest to Ames computer users began July 3.

The Computation Division with the cooperation of the Employee Development Branch is conducting the courses.

The program is designed to facilitate user education needs in keeping with the rapid progress being made in computing at Ames.

A booklet has been prepared detailing the topics and class materials that will be presented. These booklets are available through Stanton Golding at the Computer Science Information Center, ext. 6035.

Those wishing to attend any of the classes should complete the registration form and return it to User Services, 233-10.

Lecture Series

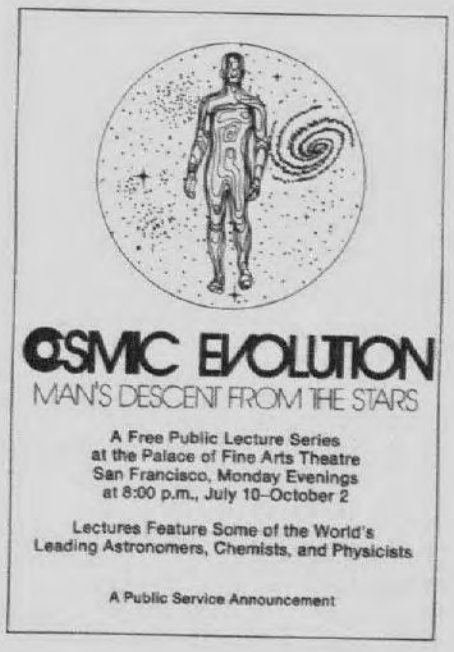
The origin and evolution of the cosmos, from the primordial fireball to thinking man, will be examined by leading theorists in an unusual public lecture series for the non-scientist on "Man's Descent from the Stars."

The 8 p.m. Monday evening series on "Cosmic Evolution" is free and open to the public at the Palace of Fine Arts Theater in San Francisco beginning July 10 and continuing through October 2.

Sponsored as a public service by Ames Research Center, City College of San Francisco and the Astronomical Society of the Pacific, the 12-lecture program presents outstanding authorities in the fields of astronomy, biochemistry, biology and physics who will focus on the newest discoveries about how the pieces of the universe fit together.

Ray Bradbury, author of Fahrenheit 451, The Martial Chronicles, poetry and plays, is the first speaker on July 10. He will serve as a guide to the "Cosmic Perspective" presenting an overview of the topics to come in the series and their relation to theology, science, aesthetics and the arts.

Speakers in the series include such men as Dr. Melvin Calvin, Nobel laureate in chemistry, who will speak on evolution of primitive molecules into self-reproducing living organisms; Dr. Bernard Oliver of the Hewlett-Packard Corporation discussing Project Cyclops, a study of attempts at interstellar communication; Dr. William Schopf, Professor of Geology at the University of California at Los Angeles, who will trace the evolutionary "invention of sex"; and Dr. Geoffrey Burbidge, Professor of Physics at the University of California at San Diego, challenging the "Big Bang" theory for the beginning of the universe.



"Ames Airings"

. . . by Jeanne Richardson

The world has a new LONGABAUGH, thanks to April and JOHN, who works in the Personnel Division. Her name is Jean Carolyn, she weighs 8 pounds, for the time being, and she is 21" long.

She joins a big brother (17 months old) who is also named John. She was born at Kaiser Hospital in Santa Clara.

The Institute for Advanced Computation (RI) called recently to announce that they now have a permanent HASSEL on their hands. It seems JOAN HASSEL has been converted to permanent employee status. Congratulations Joan and RI.

About a year ago I wrote a story using names from the Ames Telephone Direcotory. Since I had to leave so many good names out, and since a few new ones have been added, I thought I'd try it again.

Suppose for a moment that a man was created from the Ames Telephone Directory. According to my directory he would be HALE and HARDY, with a GALLANT and NOBLE character. There would be many names he could be called, but he would choose HARRY because it fit him well.

HARRY was happy. He had LLAMAS to ride, TOBAK to smoke and a STEIN to drink from. And, for sports he found a BALLHAUS with a BALL in it, and he learned to BOXWELL.

Then one day he discovered there was someone else in the directory with him. He took a LONG LOOK at her. She was SHORT and WRIGLEY when she walked. She was a RIDDLE to him, so he asked her what she was. "You're a FELLER," she said, "and I'm a girl. My name is GLORIA."

Harry went to sit on the DAVENPORT and think this over. So, Gloria began to sweep and DUST Harry's living area. Harry thought this was a HASSELL, but decided a girl might be nice to RAPP with so he let her stay.

Before long they began to FROLICH together. Soon, Gloria told him that they had to go NEEL before a PASTOR or RABY. Harry went back to sit on the davenport.

"She has been WARMING my feet at night when I get the CHIVERS," he thought. "SHUTE, it'll be WORTH it," he said.

So, Gloria dressed in WHITE and picked a ROSE to carry. Harry dressed in BLACK, and together they climbed the CHURCHILL. Three BELLs rang out and Harry was no longer free.

They were happy through the SUMMERS, but when the WINTER came and there was FROST on the ground, Gloria began to worry about Harry.

One day she said to him, "Harry, you're getting DULLER every day. You've lost your PEPP." She began giving him DAILY vitamins.

It wasn't long before she was saying, "Harry, if you would quit PARKIN yourself on that davenport and learn a CRAFT, things would be better. You could become a SILVERMAN. We could get out of this WALKUP flat and live like GENTRY instead of HICKS. And, I could WARE the latest STYLES, maybe even buy a FOX COATE from the FURMAN. Then you would have something to BRAGG about."

"Gee MENEES," he said, sticking out his CHIN. "She's getting MOODY, and now she WATTLES when she walks, I can't HACKETT she's driving me BATY," he said.

So Harry went off in search of solitude and lost himself somewhere between the pages of the Correspondence Manuel, never to be seen again.

Gloria went after him, but she got lost in the Stores Stock Catalog. People occasionally see her flitting between "Hard hat, protective" and "Hardener, photo" looking for Harry. But, no one has been able to catch her yet.

If you see Harry the next time you open your Manuel, tell him Gloria is looking for him.

SOFTBALL

The All-NASA Ames Fastpitch Softball Team was victorious, and then some, last week. They broke the Title Insurance team 16-2.

The pace for the stomping was set by Donald Kornreich and George Alger who both stole home during the first inning. From then on it was easy sliding.

Lee Is Vice Principal

Kin L. Lee, Computation Division, was recently elected Vice Principal for the Palo Alto Chinese School. The school is the only institution in the area that teaches elementary school children Mandarin Chinese. It is operated by participating parents.

Mr. Lee is also Co-Chairman of the Curriculum Committee which is responsible for updating the curriculum.

The language school classes are held during the school year in the Palo Alto High School from 7 p.m. to 9 p.m. each Friday.

WANT ADS

Advertising of articles or services in this publication is restricted to employees of Ames Research Center and on-site employees of support contractors. Articles or services advertised herein must be offered for sale or rental as advertised, without regard to race, color, religion, sex or national origin.

The Astrogram's ad section is provided as a personal, non-commercial service to Ames employees. Advertiser must be identified by name, extension and organization. The name may be left out of the ad but is needed for records. Ads must be submitted in writing to The Astrogram, N 241-4 by Thursday, a week before publication. The advertiser's home telephone number must be provided as a point of contact except in carpool notices.

AUTOMOBILES

For Sale-Toyota, 1970, 4-dr sedan, R&H, good tires, good condition, $1350 or best offer. Gowdey, 739-9228

For Sale-1955 MG-TF 1500 in very nice condition. 74,000 actual miles. Best offer over $1500. 965-5664 or 578-2676.

For Sale-1960 Valiant. Clean slant 6 engine. Gets good gas mileage. Runs well. For more information please call 257-5686. As for Dan.

For Sale-1972 Vega with AM radio, heater, 4-spd. trans. $2450. Call 238-1014.

For Sale-Oldsmobile Toronado 1966, Deluxe, gold color, fine condition. Full power. 967-1604 or 964-9611.

For Sale-1971 Datsun 1200 sedan. Excellent cond. must sell. $1500 or best offer. Call 255-9085.

HOUSING

For Rent-Vacation cottage- Sunnyside area of N. Tahoe, 2-bedroom, walk to beach or marina, $95 per week, $45 per weekend. Call 328-4642.

MISCELLANEOUS

For Sale-Wham-O hotspot heater, 2400 BTU. No flame, no smoke. Burns 24 hours on one filling. Ideal for tent, boat, or camper. Bargain for $7.50. Call Russ Barton, evenings, 493-9422.

Wanted to Purchase-Camping equipment, tent or test trailer, stove, lantern, etc. in good condition and reasonably priced. 257-0583.

Still For Sale-50cc Honda, low mileage, runs well. $75. Call Dennis Cunningham, 969-2795, after 5:30.

For Sale-1971 Honda CL 175 K5 in like new cond. $475 or best offer. 965-5664 or 578-2676.

For Sale-1971 Honda CB175. Excellent condition, low mileage. Helmet incl. $480. 965-1927, evenings after 9.

Wanted-Good home for Cocker puppy. 10 wks old. Has had first puppy shot. If interested please call 257-5686.

Free Kittens-Long haired fluffy kittens, 6 weeks old, will show and deliver free, pictures on request, 252-3370.

Free Kittens-Call 245-2682.

For Sale-Bertin 10 speed bike. 23 1/2 inches. 531 tubing, stronglight crank, milremo hubs. Huret derailer. $200. Ph. 734-8962 after 5 p.m.

For Sale-Set of 5 new 8.25-15 Blackwall, fiberglass belted, general tires $120 or best offer 736-2810.

For Sale-Small refrigerator, ex. cond., ideal for patio, garage or cabin. 657-3393.

For Sale-Villager couch (30 x 72) with modern wood base. Bolster pillow back. Blue-green-gold woven upholstery. $60. 322-5613.

Work Needed-College student will paint houses - inside or out. Have references. Can only work in West end of Santa Clara Valley. Call Jim, 253-6676 after 5 p.m.

For Sale-Tires, Phillips now full studded (removable), 4-ply, deluxe trachon widetread. 8.85-15 (L7875) used 2 wks on 98 Olds. $40 pr. Gross, 257-7454.

Wanted-Native American articles by a native American - OJIBWA, Chippewa. Feathers (eagle, buzzard, condor, hawk, owl,), beaded belts, baskets bowls, books, clothing. Call Dr. Kitzmann, 964-5297.

For Sale-two 5-speed Schwinn bicycles a year old. Boys, $50, Girls, $65. Phone 493-6733 after 5 p.m.

"Thank You"

"I wish to thank my many friends for the excellent luncheon and gift that was presented to me on the occasion of my retirement from Ames.

Both Hazel and I look forward to this new venture and hope to find it as fulfilling and stimulating as my past association with NASA.

Sincerely,
John W. Mulkern"

"Kay and I want to thank all of our friends for the delightful lunch at Dinah's, for the heart-warming friendship expressed by all in attendance as well as by the speakers, and for the much appreciated gifts. Our thanks and best wishes to you all.

Kay and Ed Rapp"

"My sincere thanks and appreciation to all who made my retirement luncheon sure a memorable occasion. I hope to catch lots of fish with my new fishing equipment. I am looking forward to my retirement, but will miss all of my old friends there at Ames.

Many thanks again,
Les Wilson"

Library of Video Tapes at Ames

A library of video tapes on various computer topics is maintained by the Employee Development Branch, Room 138, Building 241. A Video Tape Index Catalog may be obtained by calling Kathi Vitiello at ext. 5622 or Stanton Golding at ext. 6035.

For Sale-Sears Super Automatic Projector and 8 mm Bell and Howe Camera, $50. Call David A. Stewart, 438-1628.

WILL-the branch which borrowed our CEL Leak Detector Model #24-128, NASA #27375 please contact Ernie Winkler, ext. 6274.

For Sale-Panasonic 4 channel and Cassette deck, turn table, w/ 4 speakers have 2 extra speakers, Ralph, after 6 p.m., $260. Phone number, 322-4207.

Needed-Urgently needed, daily ride to and from San Francisco. Flexible working schedule. Please call x 6055.

For Sale-King size water bed with heater and frame. 3 mos. old, 5 year warantee. Cost $77. Will sell for $55. 323-7070

Wanted-Carpool, wanted from area of Hidden Glen Development (Maybury Road between Capitol Ave. and White Road), San Jose. Days, call Jerry, ext. 6144 or 5410.

For Sale-Sarod, hand-carved Delhi model, $75, 323-7070

For Sale-Espana guitar, with case. Excellent Cond. $40, call 323-7070

For Sale-Range hood, metallic finish, 2-yrs. old (good shape). Has lights, fan and filter vent, and spice storage compartment. Size 17 1/2" x 42", $10. Bird Cale, with stand, $2.50. Instamatic camera, electric eye, cube flash, nice starter for child, $4. Call 252-9406

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Pioneer Enters Asteroid Belt

Ames' Pioneer 10 spacecraft entered the Asteroid Belt July 15 and began man's first reconnaissance of this huge region of dust and rocks that circles the Sun between the orbits of Mars and Jupiter.

The doughnut - shape belt is roughly 1.8 billion miles around, 175 million miles wide, and 50 million miles thick.

Individual asteroids in the belt orbit the Sun like small planets at speeds of about 12 miles per second. They range in size from dust particles and sand pebbles to rock chunks as big as Alaska.

Passage of Pioneer 10 through the belt will permit the first measurements of numbers of asteroids too small to be seen with telescopes on Earth and of amounts and types of asteroidal material, possibly providing information about the origin of the solar system.

Since the belt is too thick to fly over or under without prohibitively expensive launch vehicles, all outer planet missions must fly through it. Therefore, an assessment of the belt's possible hazards to spacecraft is a primary mission objective.

Charles Hall, Project Manager, commenting recently on the present phase of the mission, said; "The one instrument that gives us some indication of the amount of material in the belt has shown no increase in activity since the third week of the mission.

So, there's nothing surprising to date. I suppose the surprising thing is that there has been nothing surprising.

"There will probably be no significant change until we are further into the belt."

Pioneer 10 may see practically no asteroid particles larger than 1/100th of an inch in diameter, or it may see as many as several hun-

(Continued on Page 2)

NASA'S HIGHEST HONOR . . . for scientific achievement was presented to Dr. Palmer Dyal (left), Astrophysics Branch, last month by NASA Administrator Dr. James Fletcher (right) during the Apollo 16 NASA Honor Awards Ceremony at Marshall Space Flight Center. Dr. Dyal and Dr. Charles P. Sonett, Ames Director of Astronautics, who was unable to attend the ceremony, received NASA Exceptional Scientific Achievement Medals for their research of the moon's magnetism.

Dyal and Sonett Receive NASA Honor

NASA's highest scientific honor, the NASA Exceptional Scientific Achievement Medal, was awarded Dr. Palmer Dyal, Astrophysics Branch, and Dr. Charles P. Sonett, Director of Astronautics, at the Apollo 16 NASA Honor Awards Ceremony, June 22, at Marshall Space Flight Center.

NASA Administrator, Dr. James Fletcher and Deputy Administrator George Low presented 50 awards during the ceremony in connection with last April's successful lunar landing mission. Included in the presentations were three NASA Distinguished Service Medals to Apollo 16 astronauts John W. Young, Thomas K. Mattingly II, and Charles M. Duke, Jr.

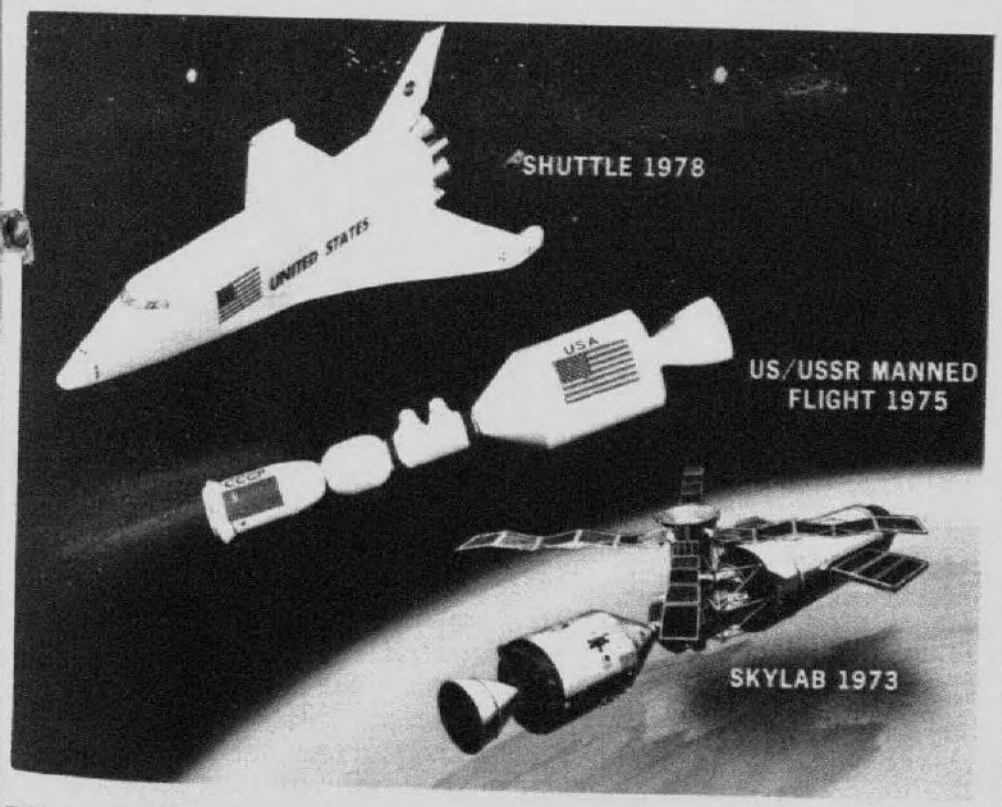
Dyal and Sonett received the medals for their experiments, the Lunar Portable Magnetometer (LPM) and the Lunar Surface Magentometer (LSM), which have flown on four of the five successful Apollo missions.

Prior to the first Apollo 12 magnetometer measurements the Moon was thought to have a magnetic field no greater than two gammas. Since that time the magnetometer experiments have caused the modification of previously held theories about the origin and structure of the Moon.

With the medals a citation was presented to each scientist which reads; "For his outstanding scientific achievements in the Apollo program in developing and interpreting experiments leading to a deeper understanding of the moon's magnetism. His results have had far reaching impact on theories of the moon's origin, history and structure."

Among others receiving the Exceptional Scientific Achievement Medals were; Isidore Adler of Goddard Space Flight Center; Kinsey Anderson of the University of California, Berkeley; and William L. Sjogren of the Jet Propulsion Laboratories.

Other awards presented were; NASA Exceptional Service Medal, NASA Public Service Award, NASA Public Service Group Achievement Award, and the NASA Group Achievement Award.



Three Manned Space Ventures Coming Up

Three challenging Earth orbital manned space flight programs are scheduled to follow the final Apollo Moon landing mission in December: Three Skylab missions in 1973 will log more than 9,000 manhours in space.

The first international manned space flight is planned for 1975 when American astronauts in our Apollo spacecraft and Russian cosmonatus in their Soyuz will link up in space.

Manned Earth orbital test flights of the reusable Space Shuttle are to begin in 1978.

SKYLAB

Skylab will be the first U.S.

(Continued on Page 3)

Two New Division Chiefs

LEONEL S. STOLLAR

Leonel S. (Lee) Stollar was appointed Chief of the Technical Services Division by Dr. Hans Mark, Director, May 28. He was previously Special Assistant to the Director of Facility Operations and Chief of the Health and Safety Office. He replaces Robert E. Eddy who is now Deputy Director of Research Support.

Stollar came to the Ames staff in 1970 from the University of California at Berkeley where he had been Laboratory Manager for the Nuclear Engineering Department.

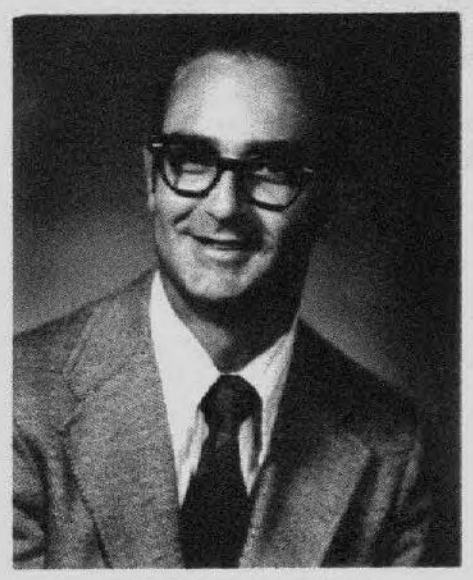
Of his new position Stollar said; "The Technical Services Division represents a resource which is unique to the Center. It provides services that are not available anywhere else. I would like to maintain those resources at their present high level of quality."

A native of California, Stollar was born in Oroville in 1930. He received a Bachelor of Science degree from the University of California at Berkeley in 1953.

After graduation he served three years with the Navy.

Returning to Berkeley, he was employed by the University as Radiology Safety Officer. Later he was promoted to Nuclear Reactor Supervisor, and then Laboratory Manager for the Nuclear Engineering Department.

Mr. Stollar, his wife Ilse, their daughter, Anina and son, Andreas, make their home in Saratoga.



ROBERT L. PIKE

The appointment of Robert L. Pike as Chief of the Personnel Division was announced June 26 by Dr. Hans Mark, Director.

Mr. Pike said of his appointment, "The Personnel Division is made up of an excellent group of people. I'm looking forward to working with them. Working with a fine staff in a Division with an important role will present a very fine career opportunity."

Mr. Pike came to Ames in 1963 from the NASA Western Operations Office, Santa Monica. Prior to joining NASA he was employed by the Sacramento Air Material District.

He began his career at Ames as a Contract Negotiator in the Procurement Division. While he was with that division his Branch Chief wrote of his abilities; " . . . Mr. Pike is recognized as the authority on contractual matters, and, furthermore, as an employee who will get the job done right, and get it done right now."

He was appointed Staff Assistant to the Deputy Director in 1969, and Equal Employment Opportunity Officer in 1970.

Mr. Pike was born in Oakland in 1933. He received a Bachelor of Arts degree in Social Science from San Francisco State College in 1959. He served two years with the Army at McClellan Air Force Base.

He and his wife, Helen, with their daughters, Caren and Kathy, make their home in Fremont.

Ames' Policy on Busing

The Ames Public Affairs Office has arranged for charter buses to take Ames attendees to the Second Urban Technology Conference in San Francisco, July 24-26. The buses will leave the front of the Ames Administration Building at 7:30 a.m. each morning and return to the Center at the close of the last session each day.

Charter buses are also available to those employees attending the Cosmic Evolution lecture series in San Francisco. The buses leave the Center each Monday evening at 7 p.m. and return following the lecture. For further details call Cathy Stimson, extension 5091.

Pioneer 10

(Continued from Page 1)

dred above this size.

Bodies larger than 1/2 inch and smaller than one-fourth of a millimeter diameter are likely to be very common and to impact the spacecraft frequently.

Particles over 1/50th of an inch in diameter could seriously damage Pioneer 10. One estimate of the likelihood of such a damaging impact is one chance in ten - that is, a 90 percent chance of passing through the belt undamaged.

In the center of the belt, small asteroid particles would impact the spacecraft at about 30,000 miles an hour. At that speed even tiny particles could do serious damage.

It is believed that the asteroids either condensed individually from the primordial gas cloud which formed the Sun and planet or that they are fragments from the break-up of an earlier small planet.

Scientists with experiments aboard Pioneer 10 have reported some preliminary findings made between Earth and Mars:

Substantially more, and more highly reflective, interplanetary dust than expected was found between the two planets, then fewer particles while crossing Mars' orbit. The "planetary sweeping" theory thus appears to have been tentatively confirmed. This theory holds that planetary gravity "sweeps up" dust and larger particles near planet orbits.

The Gegenschein, or light glow long observed by astronomers at the point directly opposite the Sun, has been proved to be not an earthly phenomenon but sunlight reflected from the total mass of interplanetary dust and debris.

On August 6 this year Pioneer 10 will team up with another Pioneer spacecraft to make unique measurements of the solar atmosphere. Pioneer 9, near the Earth's orbit, will measure ionized solar wind particles coming from the Sun; and five days later, Pioneer 10, about 160 million miles farther out, will be able to measure the same solar particles. This will be possible because the two spacecraft will line up with the Sun. A similar experiment took place with Pioneers 6 and 10 in April, and another one will be done in October 1972 by Pioneers 8 and 10.

Pioneer 10 has been in unexplored space since it left the orbit of Mars on June 9 and now has covered a little more than one third of its 620-million-mile flight path to Jupiter. It will exit from the Asteroid Belt next February and reach Jupiter on December 3, 1973.

The spacecraft already has passed some outlying asteroids, and the density of interplanetary material encountered is now great enough that July 15 has been chosen as the official date of entry into the belt. At that time the spacecraft will be 115,000,000 miles from the Earth, traveling along its flight path toward Jupiter at 56,000 miles an hour.

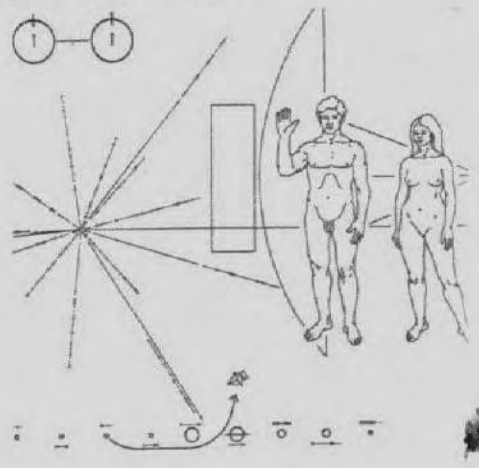
Pioneer Plaque in Smithsonian

A copy of Man's first message to beings outside our solar system was recently made a part of the Smithsonian Institution. An exact replica of the pictorial plaque carried aboard Ames' Pioneer 10, which will swing around Jupiter in 1973 and eventually escape our solar system, was placed in the National Air and Space Museum.

The exhibit, entitled "Message to Extra-Terrestrials" shares a room with the Wright Flyer, the Spirit of St. Louis, and the Apollo 11 Command Module.

The plaque was designed with the idea that the spacecraft may someday be encountered by scientifically educated inhabitants of another star system. Etched on a 6" x 9" aluminum plate is a schematic description of the locale, epoch and nature of the builders of Pioneer 10.

Ames' Biosatellites 2 and 3 will also be made part of the Museum soon. They are presently being shipped to the Insitution.



EXTRATERRESTRIAL MESSAGE

the astrogram
Admin. Mgt. Building
Phone 965-5422

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

Editor . . . . . Jeanne Richardson
Reporters . . . . . NASA Employees

Deadline for contributions:
Thursday between publication dates

Future Missions

(Continued from Page 1)

space station in orbit. The spacecraft and launch vehicles are elements of the Apollo program which became surplus after several Apollo test flights in 1967 and 1968 proved that the equipment was qualified to carry out lunar landing missions.

The largest segment is the workship or space laboratory, the size of a six-room house. It is a third stage of a Saturn V launch vehicle made habitable for a crew of three men.

Attached to the workshop will be an airlock, docking adapter and a large solar telescope. These will be launched into Earth orbit with the first two stages of the Saturn V rocket from Kennedy Space Center.

About one day later, three astronauts will be launched in an Apollo spacecraft by a smaller Saturn IB vehicle. They will maneuver the spacecraft to dock with the Skylab laboratory for missions ranging from 28 to 56 days.

US/USSR JOINT MISSION

The United States and the Soviet Union have signed an agreement to carry out a joint manned space mission. Space officials of both nations are planning for American astronauts in an Apollo spacecraft to rendezvous and dock with a Russian Soyuz spacecraft piloted by Soviet cosmonauts, probably in 1975.

A tentative flight plan is for the Apollo spacecraft to be launched from the Soviet Union. The Apollo craft, outfitted with a compatible docking hatch and airlock will manuver and link up with the Soyuz. They would remain docked for about two days. While docked Americans will enter the Soyuz craft and cosmonauts will visit the Apollo spacecraft.

The American and Soviet spacemen will work together as systems engineers. The venture may make possible the rescue of crewmen in the event of emergency situations and is part of a program of broader US/USSR space cooperation

SPACE SHUTTLE

The reusable Space Shuttle is to be developed over the next six years. Test flights are to begin in 1976, manned Earth orbital test flights in 1978, and the complete Space Shuttle vehicle is to be operational before 1980.

The Shuttle will consist of a manned reusable orbiter which will look like a delta-winged airplane about the size of a DC-9 jet liner. At launch it will be mounted "piggy back" to a large expendable propellant rockets. The solid rocket motors and three orbiter engines will be ignited simultaneously on the launch pad. After a few minutes the rockets will separate and be recovered from the ocean, refurbished and reused.

The orbiter with a crew of four men will continue into space. When the desired orbit is achieved the propellant tank will be jettisoned into the ocean. When its space mission is completed the orbiter will return to Earth and land like an airplane. It will be designed to carry out at least 100 and possibly as many as 500 mission in space.

HOW TO SAVE LIVES AND HELP PEOPLE . . . these First Aid instructors are demonstrating the mouth-to-mouth resuscitation and cardiac massage techniques they teach in the various First Aid courses offered at Ames. They are; (l to r) Nancy Bergelin, Health Unit; John A. Sekulo, Model and Instrument Machining; Earl Lewis, Santa Clara Heart Association; John G. Habermeyer, Safety Officer; and ResusciAnnie, Ames' demonstration doll.

Take a First Aid Course at Ames

John Habermeyer, Ames Safety Officer, has dozens of stories about frightening situations which ended happily because of someone's quick and knowledgable reaction. Most of the stories come from John's students. He is one of fifteen Ames employees who teach First Aid courses at the Center.

"What is really gratifying," Habermeyer said during a recent interview, "is the number of case histories that come back from the students. It really makes life worthwhile to hear that one of your students came through and saved someone's life. Over 150 employees have taken one or more of the classes.

There are four types of First Aid courses offered at Ames. Two basic First Aid classes; an eight-hour milti-media class and a 12-hour Standard class. The eight-hour class uses movies, live demonstrations and workbooks. The 12-hour course, because of the time required, is conducted in two-hour classes twice-a-week, for three weeks.

An advanced 16-hour course, which is required for Ski Patrol personnel and Sierra Club trip leaders will be available in the evening.

The shortest of the classes is a three-hour course which includes mouth-to-mouth resuscitation and cardiac massage. Upon completion the student receives a card certificate from the American Heart Association.

All courses are currently available and will be scheduled as needed. Persons wishing to attend should submit a Training Application, ARC 301, to the Training Office, N241-3, through the individual's Branch Office.

New Retiree Badges

Retired Ames personnel may now obtain identification cards which will afford them access to the Center during normal working hours through the Gate 18 Visitor Pass Office. It will no longer be necessary for them to register at the Reception Desk.

Ames retirees wishing an identification card must write the Security Office, N241-2, including name address, date and signature. Those with a retiree picture badge are requested to return it with the letter. There has been a change in picture badge design, and those previously issued are no longer honored for access to the Center.

THANK YOU

"To my friends at Ames --

Kay and I thoroughly enjoyed and appreciated seeing all of you at my retirement luncheon. Our sincere thanks to each of you for helping us celebrate and for making it such a memorable and happy event.

Also, we wish to thank you for your very thoughtful gifts. The AM FM radio for our motor home (which is already installed - it sounds great!), the slide projector and the many momentos will be constant reminders of our good friends at Ames.

Sincerely,
Vic Stevens"

"I wish to say that I was extremely pleased and honored by the number of my good friends who attended the retirement lunch. The happiest and fullest years of my life were those spent at Ames with a great bunch of people. I am having a lot of fun with the camera, taking pictures of just about everything.

I'll bet there never was a retirement lunch quite like this one. My thanks to all those who made it possible.

Best Wishes to All,
Jake Magarian"

"I do wish to express my sincere thanks to all those wonderful people who took time and consideration to come to my retirement luncheon.

I greatly appreciate the thoughtfulness and originality that was exercised in the selection of my gifts. The bicycle I acquired with the cash gratuity will certainly help me to keep young during my retirement.

Thanks again,
Bill Atwill"

"To All My Friends at Ames:

Thank you all for making the occasion of my retirement such a happy one. It is difficult to describe the warm and happy feelings I experienced, to see and talk with you all at Michael's. My dad at 86 and mother at 81 experienced similar feelings.

I hope to keep in touch with all of you and help welcome you to the retirement club as your turns come.

Sincerely,
George Edwards"

"My wife joins me in expressing sincere thanks for the memorable retirement luncheon and the wonderful gift, a Didgital clock, AM & FM combination radio.

It means so much to have such good friends who wish you well. And, your kindness is appreciated more than words can say.

Best Wishes and Thanks,
Joe Novakovich"

Quick Copy Service Is Improved

The Quick Copy Service was established to:

Reduce copying costs at the Center.

Reduce time spent by Ames employees reproducing their own work.

Provide an essential service for all.

The service has improved greatly in the past year and further improvements have recently been made in our facilities. In most cases the turnaround time will be 24 hours or less. We urge all employees to utilize this service whenever practical and ask that the following limitations be observed:

1. Maximum paper size is 8 1/2" x 14".
2. Maximum number of copies is 20 of any number of originals. (Exception to this limitation requires justification)
3. No requests that infringe upon copyright or other copying regulations will be accepted.
4. Contractor requests must be approved by the appropriate technical monitor.

To place an order, prepare in duplicate a Quick Copy Work Order (ARC 388) and submit it with the work to be copied in a Quick Copy Service envelope (ARC 427) through the regular internal mail system.

SOFTBALL

NASA-Ames obtained its second consecutive win, a 4-3 victory over El Azteca, and is now two wins and no losses for the second half in the San Jose Fastpitch League. Ames played "come from behind ball" with a prodigious solo trip homer by Jim Meyers who tied the ball game in the 6th inning. Ames' aggressive bat got runners on base in the 8th and 9th. Rodger Prustolka's key bunt in the ninth squeezed Tom Knight home for the winning run. Bob Corbett effectively pitched a scoreless ball game after the 2nd inning. Well done guys; keep it up!

Ames next game is with the Father's Club at 6:45 p.m. on Thursday, July 20, 1972 at Solari Park about a mile west of 101 on the Capital Expresswav. You're invited.

GOLF

. . . by Kay Bruck

The Sunol (Palm) Tournament on July 8 was a point par game played in three flights (and "Flights" is the right word, for it was a windy-windy day). The following winners had key roles in our "Gone with the Wind" tournament as reported by the Tournament Chairmen, Ruben Ramos and Howard Garrison:

First Flight; 1st place, Debbie DeBevoise; tied for 2nd place, Frank Lazzeroni and Owen Koontz; and 3rd place, Dave Banducci.

Closest-to-the-pin on 17 was Jack Hawkins.

The next regular monthly tournament will be at Aptos on August 12.

Go To Training Office for Health Insurance

Responsibility for the Federal Health Benefits plans has been returned to the Traning and Special Projects Branch, Building 241 Room 138.

Any problems relating to health insurance claims should be referred to that office, extension 5622.

Claim forms, brochures and appointments with insurance representatives may also be obtained through the Training Office.

THANK YOU

"Words alone cannot fully express my deep appreciation for the outstanding floral spray and memorial check directed in sympathy for Susan Flugel Ashley who died suddenly June 26. This will well be remembered by myself and the family, for whom I offer my gratitude and thanks.

Very Sincerely,
Bill Ashley"

Repossessed Cars

The Moffett Field Employees Credit Union has two cars for sale. They are currently accepting sealed bids on the following vehicles:

1972- Chevy Caprice, 2-dr.,V8, brwn w/ blk interior, air, auto. trans. fully equipped.

1971- Datsun, 4-dr. sedan, rd. w/ blk interior. Radio, air, and 3-speed trans.

Contact Fred Mayer, General Manager, at 966-5494.

WANT ADS

AUTOMOBILES

For Sale-'60 Chev. Bisc., auto., rad. & htr. Good mech. cond.; new tires, 88,000 miles. Orig. owner, 735-9127.

For Sale-'71 Porsche 911T. Dk blue/ blk intr., 5-spd. Appearance Group. Alloy Wheels, AM/FM, Abarth Exhauts, best offer, 349-8212.

For Sale-'68 V.W. Bug, grn., rad. & htr. lo mileage, ex. cond. $995, 255-8507.

For Sale-'70 V.W. Camper, sacrifice, trans. to new area. Immac. cond. see to appre., has refgr., sink table, never used. $2750. 736-1710.

For Sale-'71 Porsche 911T, AM/FM. Comfort Group, alloy wheels, 23,000 miles, 5-spd., tinted glass, chains, frnt. & rear protec. bar, ex. cond., $6,800, 334-8898, Ray Diaz.

HOUSING

For Lease-4-br., 2-ba., house, 1/2 acre, creek side, Los Altos, Jay Christensen. 968-1106.

For Sale-3-bdrm, 2-ba. fam., kit., no-wax vinyl flr. carpet thru-out, fireplace. Prime area, close to shop., schools and transit. Cambrian Park area, S.J. $27900, 377-6346.

For Rent-Nice apt. in triplex, 2-bdrm, 1-ba, $175 per mo. and 1-bdrm, 1-ba., $140 per mo. Refgr., dshwsher, disposal, and w/w cpt. Few miles from Moffett Field, conv. loc. at 1198 W. Iowa and 434 Bernardo in Sunnyvale. Call 732-9438.

For Sale-Sparkling Cupertino Exc. Nr. Vallco, Cup. schools, park. Prof. lndscpd, huge rdwd deck, enclsd lanai, sep. fmly rm. drps, cptd/hwd, tile entry, AEK, 3-bdrm, 2-ba. $34, 500, by owner, 253-3851.

For Rent-Vac. cottage, sunnyside N. Tahoe, 2-bdrm., wlk to beach or marina, $95, wk., $45, wknd, 964-9848, 6-7p.m.

For Sale-Home, fant. buy, 3-bdrm. 2-ba., fam. rm. AEK, D'boy pool, cov. patio, trees, finished grge. apprsd. $29,000, 379-6167.

MISCELLANEOUS

For Sale-Tires, Phillips, snow, full stud. (rmvble), 4-ply, traction wide-trd. 8.85-15 (L7875) used 2 wks, on 98 Olds. $40 pr. Gross, 257-7454.

For Sale-9x9 umbrella tent, $35. 4x6 pup tent, $6. Dble slp. bag,$4 329-0747.

Wanted-Used Cello, 257-0580.

For Sale-Dob. Pinscher pups AKC bred for temper. & conform., pet & show quality. All shots $100 & up. 793-6502, p.m.

For Sale-Kawasaki 350, 1970, 5500 miles. ex. cond., $450. Call 965-3643.

For Sale-2 Honda EL 175's ex. cond. have ref., Thompson, 374-2826.

Free-Kittens, Var. colors & sex, avail. 3-4 wks, hurry please, 264-8859.

For Sale-Klipschorn corner horn spkr. grt for organ or hi-fi, $100. Also, Allied Star-roamer all-wave radio with bandsprd. like new, $25 961-1577, p.m.

For Sale-Potter's Kick Wheel, wdn. frame, 36"x37", 16" wheel head. Comes w/ 4 metal bats. $150, 295-4938.

For Sale-Trans. stereo phono. G[illegible] Model 600, $15/offer. 329-8166, p.m.

CarPool-Want to shre gas and drv. live 2 miles N. of Fthll Col., wrk. 8-4:30. Thru Sept. only, 2-3 days a wk wld help. x 5570 or 948-0871 p.m., Linda Parise.

Wanted-3rd mem. for car pool from Embarcadero Rd. area in P.A., x5663, 328-8537.

For Sale-Port. dshwshr, ex. cond. $60, recently trans. new home has blt-ins. 997-1791.

Lost, Strayed or Stolen-Elec. pencil shrpnr, 3-hole punch from Life Sciences Library wrk rm. N239 Rm B71. PLEASE RETURN, No questions asked, we need them.

For Sale-'71 Honda CL175K5 Scrambler, like new cond. $475 or best offer, 578-2676.

For Sale-6000 BTU Westinghouse air cond. $140, used 1 wk, has 11 mo. left on full service guar. 287-5166.

For Sale-'63 Dodge Dart, AT, new tires, 2-dr. sedan, good wrk car. 245-6994, p.m.

For Sale-'71 Toyota, 5,000 miles, ex. cond. Christensen, 968-1106.

Photo Club

A photography club is being formed at Ames. A luncheon meeting will be held in the Private Dining Room on July 28 at noon. Interested employees should contact Roy Presley or Mamoru Inouye at extension 5126.